

mirostone[®]
SOLID SURFACES FOR EVERY ROOM

Mirostone[®] fabrication and installation instructions

January 2019

solid surface

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It is a condition of the Mirostone limited warranty that the following supplementary instructions are followed.

We recommend that you attend an approved solid surfacing course which is relevant to Mirostone. We offer Mirostone solid surfacing courses: please see our distributor's websites for details.

We have also produced installation and maintenance videos that show various techniques. To view the videos, please visit our website: mirostone.co.uk

Before working with Mirostone, carry out a risk assessment. Take all steps to minimise any risks to your Health and Safety and for anyone (including your customer if they are near your installation) who may be affected. This must include the use of PPE (Personal Protective Equipment such as the correct dust mask), adequate dust extraction for all power tools and the provision of adequate ventilation within the area of work. The Mirostone MSDS is available from the distributors on request.

Before commencing any fabrication or installation work, inspect the condition of your Mirostone solid surface products and ensure you are satisfied that there are no defects, for example: colour matching defects.

A reasonable size of Mirostone offcut should be stored at the installation premises for any future colour matched repair work or modifications. Any offcuts that cannot be stored at the premises should be disposed of in a skip or other bin. Do not incinerate any Mirostone waste.

The following instructions are a supplement (not a replacement) for the solid surface knowledge you will have obtained by attending an approved solid surfacing course.

Handling

Mirostone worktops and breakfast bars are supplied in protective cardboard boxes and are available in sizes 3000 x 650 x 20mm and 2000 x 960 x 20mm respectively. These weigh approximately 75kg each. Mirostone splashbacks and upstands are available in 12mm thickness and are much lighter in weight.

Mirostone worktops, breakfast bars and splashbacks should never be handled by a lone individual; they must always be a team lift. Where possible, use handling aids to minimize the amount of manual handling required. When moving Mirostone by hand, carry it so the shorter edge is vertical. This avoids unnecessary flexing which can cause stress cracks in the material.

Mirostone can be seamlessly jointed. Please refer to the 'Jointing methods' section below. Potentially, a Mirostone worktop or breakfast bar can be seamlessly jointed to over 6 metres in length. When considering the construction of exceptionally large seamlessly jointed Mirostone surfaces, you must plan for the weight of the surface and the feasibility of gaining access to the area of final installation

Conditioning

All materials must be given a minimum of 24 hours to meet room temperature prior to installation. This is especially important for adhesives and silicone sealants because temperature affects curing time and consistency. Mirostone products should be stored horizontally and supported adequately to prevent any bowing or collapse of the product.

Removing the protective film

Each Mirostone worktop and breakfast bar is supplied with a protective film. Before commencing fabrication, remove the protective film in one movement. Do not intermittently stop and start the removal as the film adhesive could then mark the surface. Once the film has been removed, wipe over the entire surface with denatured alcohol to remove any adhesive residues which may cause your tools to snag on the surface.

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Tools and materials required

Mirostone products can be installed using high quality woodworking tools.

- A dust extractor. We recommend the use of an M class extractor.
- Plunging circular saw with fine tooth or solid surface blade.
- 400watt (or above) 1/2 inch router with tungsten carbide cutters including straight 1/2 inch two flute.
- Pendulum jigsaw with a fine-tooth blade or solid surface blade.
- Random orbital sander. Having a 150mm or larger diameter head speeds up the finishing process. Non-random orbital sanders have a sanding pattern which is predictable and can lead to linear or circular marks in the material.
- Electric hand drill with a 12mm drill bit suitable for plastics.
- A hole cutter if fitting tap(s).
- A-Clamps, G-Clamps, F-Clamps or Rapid action clamps. The more clamps you can have available the better, but as a minimum you will require 3 per joint or alternatively a pair of solid surface seaming tools or the Mirostone suction clamp tool.
- 25 x 25 x 50mm blocks of MDF for the manual jointing method.
- A hand sanding block
- Adhesive gun (both for silicone and 50ml & 250ml solid surface adhesive cartridges).
- Hot melt glue gun.
- Masking tape.
- Colour matched solid surface adhesive. A 50ml cartridge should complete 2no. 630mm joints.
- A colour matched silicone sealant.
- Silicone adhesive.
- Optional for bathrooms only: 600 grit abrasive discs, 800 grit abrasive discs.
- Mirostone installation kit, this contains:
 - Heat reflective tape 3mx50mm
 - 12x 150mm abrasive discs –3x150 grit, 3x240 grit, 3x320 grit & 3x500 grit
 - 2x 150mm 500 grit Scotch-Brite polishing pads
 - 500ml solid surface rejuvenator (a mildly abrasive cleaner to help remove light surface scratches)
 - 250ml denature alcohol
 - 500ml solid surface non - abrasive daily cleaner
 - 3x lint free wipes
 - Microfibre cloth
 - 6 plastic lamellas.
- Mirostone Care & Maintenance kit, this kit contains:
 - 500ml solid surface non-abrasive daily cleaner
 - 500ml solid surface rejuvenator (a mildly abrasive cleaner to help remove light surface scratches)
 - 500 grit Scotch-Brite pad
 - Microfibre cloth
 - 250ml Solid surface shine and protect polish.

Cutting and edge finishing

Mirostone can be cut in a variety of ways, the most common being with a router, circular saw or jigsaw. Standard wood working blades can be used; however, there are now blades which are specifically suited to solid surface material. These leave a cleaner finish to the cut which speeds up the finishing process.

We recommend that all cuts are finished with a router as it will leave less tooling marks than other methods. When cutting with a router or circular saw, the cut should be made in several passes to prevent overheating. We recommend cutting 20mm thickness Mirostone using 4 consecutive passes. The first at 5mm depth, the second at 10mm depth, the third at 15mm depth and the final pass should be greater than 20mm to ensure the cut is complete.

We also recommend the use of guide rails with cutting tools where possible to maximise the accuracy of the cut. If not using guide rails or if the cutting tool is sliding across the surface of the Mirostone then you must use masking tape to protect the surface and prevent scratches.

Mirostone naturally expands and contracts very slightly as the ambient temperature around it changes. Please allow 1 millimetre per 1metre of expansion gap wherever Mirostone is adjacent to any object (such as a wall) which could prevent this expansion and contraction. For example, 3mm for a 3m long worksurface.

If the cut edge is to form part of a joint, it must first be machined by you to become absolutely square with no rounding at all of the edge. Care should be taken not to 'round over' the top and bottom of the cut edge: use of a power sander can easily lead to this due to their tendency to 'grab' and their lack of feel. Please refer to 'Jointing methods' for more details of this critical process.

If the cut edge is to be visible, for example at the open end of worksurface then the edge can be finished to match the top surface. Please see the later section 'surface finishing'.

Cut-outs, tap holes, drainer grooves and corners

Most kitchen or bathroom installations have at least one of these features within their design, so it is important to understand these.

Cut-outs are most commonly required for sinks, bowls, hobs and electrical sockets. Cut-outs should be a minimum of 75mm from any joint and as far away from any edge as possible, so that the strength of the surface is not weakened significantly. The cut-out should be marked out with masking tape placed directly on the Mirostone surface (do not use permanent markers or other ink-based pens directly on the surface of the Mirostone).

Ensure all measurements are thoroughly checked prior to any cutting or drilling. Ensure the piece that is being cut out is adequately supported; even small pieces of Mirostone can be heavy enough to cause injury. When happy with the positioning and size of the cut-out, drill each internal corner with a 12mm drill bit or larger bit if possible (to suit the sink, bowl, hob or electric socket shape). The smooth curve of the drilled hole instead of a 90° angle reduces the risk of stress cracking.

Once all corners are drilled, cut the straight lines to join the drilled corner sections in accordance with the above section 'Cutting & edge finishing'. Where possible use a jig made of compact grade laminate or MDF and a router with a guide bush. Ensure these are clamped securely to the surface. Take care not to get too close to the corners.

If the cut does not reach the corner, this can be finished with a jigsaw. Once the section to be cut out has been removed, use a 150 grit abrasive disc and your hand sanding block to remove any sharp sections or rough cuts. If fitting a hob, you must use heat reflective tape around the inside edge of the cut-out.

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When fitting hobs or inset sinks, it may be necessary to artificially increase the thickness of the material on the underside of the cut out so that the fasteners for the sink or hob do not 'bottom out'. This is achieved by cutting the waste material from the cut out into small blocks and adhering these to the underside of the edge of the cut out (please refer to 'Fitting acrylic sinks' and apply the same principals when adhering the blocks).

When fitting hobs or inset sinks, use the Mirostone metal support bar and bracket kit under the front section of Mirostone and secured to the cabinet walls. This is because only a small amount of Mirostone remains at the front and rear of the sink and hob cut out and needs this additional support.

Ensure all hobs are positioned, installed and connected in accordance with the hob manufacturer's instructions and all relevant gas/electrical regulations.

If fitting drawers or a built-under oven below the hob, it may be necessary to adjust the position of the drawer box or oven support to accommodate the hob sitting within Mirostone's 20mm thickness.

For the drawers, you will only need to adjust the rails and the mounting plates which are on the rear of the upper-most drawer fascia. Carefully measure how much lower the drawer box needs to be. Then create a copy of the existing mounting holes at the required lower level on the inside of the cabinet side panels and rear of the upper-most drawer fascia. This will lower the drawer box relative to the hob but leave the drawer fascia in the correct position.

The oven support panel can be lowered in the same way. However, the oven may need a fascia installed between the top of the front panel of the oven and the underside of the worksurface. Please check your cabinet manufacturer's instructions prior to creating any mounting points.

For tap holes use a flat drill bit or hole cutter.

Because Mirostone is a solid surface, you can create a 'waterfall' effect by having your drainer groove design moving from a depth of 2mm to 5mm. Elevate the drainer groove template at one end by 3mm. Use a router and radius cutter.

Fitting acrylic sinks and bowls

Acrylic sinks are not supplied with a jig due to the slight differences created in their manufacturing process. Instead we use the sink itself as a jig.

Position the sink and mark the inside of it, then mark again at 6-10mm to the inside of this. Now remove the sink. Drill a hole and use a jigsaw (starting at the drilled hole) to remove the waste material. Sand the underside of the surface where the sink will contact the worksurface using a 150 grit abrasive disc; this will help adhesion. Position the sink again and use 4 - 6 MDF blocks glued (use your hot melt glue gun for this) to the underside of the worksurface. These will be a guide each time the sink is positioned. Remove the sink and clean the areas sanded on the underside of the worksurface and the top edge of the sink. Apply the solid surface adhesive to the underside of the worksurface, place the bowl back in position and clamp in place until the adhesive has set.

Once the adhesive has set, using a two-flute bottom bearing guide cutter, set the bearing so that it is contacting the uppermost inner face of the sink and not the worksurface. Trim away the excess material. Apply a rounded profile around the top edge of the sink. Finish the raw edge as described in the section 'Surface Finishing'.

If you are using a Mirostone A0004 1.5 bowl pure acrylic sink, the measurement across the outside flange of this sink is 575mm. If the sink is to be installed into a 600mm base cabinet, the side panels of the cabinet will require modification to accept the width of the sink and the depth of the flange. The cabinet front and back rails should be adjusted to accept the bowl and tap in the same manner as for all other sinks.

Fitting stainless steel sinks

Using a router cutter with a top bearing

Purchase or create an MDF or compact grade template of the chosen stainless steel sink.

Accurately position the template and mark the cut-out shape with a pencil.

Using a pencil, follow the same shape, but this time 6mm inside the original pencil shape.

Whilst the Mirostone surface is fully supported, drill a 12mm hole and then use a jigsaw to cut around the second (smaller) marked out shape, starting the cut at the 12mm hole. Remove this excess material; to give you room to use your router.

Now clamp the template back into position and set the top bearing, use the router to trim all round the first pencilled cut out shape, making a smooth finish.

The cut out now needs finishing, so start with 150 grit sandpaper, then 240, 320, 500 and finish with a Scotch-Brite pad.

Turn the worktop over so the reverse side is facing you and accurately position the sink centrally above the cut out. Use a pencil and trace around the sink perimeter.

Now bond a few small blocks of MDF or similar around the sink using hot melt glue, so that the sink will accurately relocate to this position after you move it.

Now put the sink to one side.

Then drill holes around the pencil line of the sink perimeter and apply the threaded brass inserts used for securing the sink.

Now, around the edge of the cut out, put a bead of neutral cure clear silicon and position the sink on top of this, apply some pressure.

Now insert the bolts with washers into the brass inserts and tighten these to clamp the edge of the sink to the underside of the worktop.

Turn the worktop over and remove excess silicon from around the sink.

Using a router cutter with a collet

The worktop must be fully supported on a scrap piece of MDF or similar.

Accurately position the sink template and clamp onto the Mirostone worktop.

Now, using the router with a 12mm cutter, plunge 5mm at a time and follow the template repeatedly in 5mm increments until you are through the worktop. Remove excess material.

Now follow the instructions above starting with the sanding process

Unsupported surfaces

If you need to allow a Mirostone surface to overhang a cabinet (e.g. at a breakfast bar area) please do not have an unsupported overhang of more than 150mm.

If the unsupported overhang needs to exceed 150mm, please use either a fully supportive continuous steel plate or plywood panel on the adjacent cabinet and under the overhanging Mirostone.

When built under heat generating appliances such as integrated fridges, freezers, washing machines, single ovens and dishwashers are installed under Mirostone, fit an 18mm MFC panel under the Mirostone and directly above the appliance by securing it to the appliance cabinet walls.

As noted in the section: 'Cut-outs, tap holes, drainer grooves and corners', when fitting hobs or inset sinks, use the Mirostone metal support bar and bracket kit under the front section of Mirostone and secured to the cabinet walls. This is because only a small amount of Mirostone remains at the front and rear of the sink and hob cut out and needs this additional support.

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Jointing tools

Suction clamps

Mirostone suction clamps are available from the distributors. They are a fast, professional way of levelling two panels and bringing them together for a bonded joint. They comprise 2 circular clamps which can manually create a strong vacuum and grip on the two panels. The two clamps are joined with 1 horizontal and 2 vertical threaded bars which bring the two panels together and keeps them level with each other.

MDF blocks

If you are not using the Mirostone suction clamps or another jointing tool, use the manual method as follows. Glue 3 MDF blocks on each side of the joint using your hot melt glue gun.

The blocks will be used to pull the joint together so must be opposite and parallel to each other. Leave the blocks to adhere fully. Then use G clamps to the blocks to bring the 2 panels together.

Jointing methods

Butt Jointing

Mirostone worksurfaces are supplied square edged, removing the need for a butt & scribe joint. You can save a lot of time on site using a simple butt joint.

Inconspicuous jointing

Because of the size of the coloured particles in some of the more dramatic décors of Mirostone, it can be difficult to create a truly inconspicuous joint. This is because the line of the joint must cut through the particles in a noticeable way. This noticeable joint line is also true of marble décors. See the décor collection section of the Mirostone consumer brochure which will give you examples of how Mirostone marble décors will look when jointed.

As mentioned in 'Cutting and edge finishing', edges of the material which are intended to be joined together must first be machined by you to become absolutely square with no rounding at all of the edge. Wherever possible, we recommend the use of clear plastic furniture lamellas to help the levelling of the two surfaces. It is not possible to seamless join Mirostone edges that have not first been machined in this way.

Prior to bonding the joint, a trial 'dry fit' should be performed with the 2 panels just touching. Inspect for any gaps or excessive variation in levels. If any issues are detected, they should be rectified until you are satisfied with the quality of the 'dry fit'.

A solid surface joint should not need to be forced together; both sides should sit neatly against each other with no gaps whatsoever.

The 2 pieces are now separated, thoroughly cleaned with denatured alcohol and a completely clean lint free cloth from the Mirostone installation kit. It is absolutely essential that all marks such as pencil lines, grease or other contaminants are thoroughly cleaned from the dry joint. If any of these remain, the adhesive will mix with them, showing a visible stain on the finished joint surface, which will be rejected by your customer.

Now apply the 2-part solid surface adhesive. The ambient temperature affects the adhesive drying time: the colder the temperature the longer it will take to cure and the higher the temperature the quicker it will cure. Insert the adhesive cartridge into the adhesive gun and attached the mixer nozzle. Squeeze the adhesive right to the end of the nozzle, then squeeze a nozzle length out of the mixer onto a piece of scrap material so you are 100% certain the adhesive is fully mixed. Working quickly, but safely, apply adhesive to both faces of the joint that will contact each other. Apply enough adhesive so that it will squeeze out the joint but not so much that it

will make removal difficult. When finished, set your adhesive gun down on a piece of scrap material so any drips from the nozzle will be caught.

Use the suction clamp method or manual method as noted above.

Gently and evenly increase the pressure so that the joint comes together and excess adhesive squeezes out of the edges. Take a sharp chisel and remove the excess adhesive from the front edge only. Take care not to damage the surface. Leave the joint to set. Once the adhesive that has squeezed out of the other joint edges has dried and is hard, remove the clamps and MDF blocks or suction clamps.

Now take your random orbital sander with a 150 grit abrasive disc and begin to sand the hardened adhesive. Once the hardened adhesive is level with the surface of the Mirostone: stop sanding. The joint will need 'finishing' along with the rest of the worksurface, please see the later section 'Surface finishing' for more details.

V-groove jointing

The material should be cut as the advice under the 'Cutting and edge finishing' section with the following additional step. Fit a 45° bevel tungsten carbide router bit into your router and proceed to set this so it produces a bevel no more than 2mm deep. Any larger than this and it will become a dirt trap and produce too small a contact area between each piece of material. Then apply the 45° bevel to the Mirostone panel which is to form the other half of the joint.

As with the inconspicuous joints, it is essential to perform a 'dry fit' to ensure the accuracy of the joint. Then apply clear neutral cure silicone between the 2 cut edges of the material and push the 2 pieces of material firmly and evenly together. Wipe off excess silicone immediately and allow to set.

Edge profiling

The edges of Mirostone are supplied by the distributors square cut for you to decide which edge finish you require. We recommend applying a minimum of a 1.5mm radius to the edges to reduce the likelihood of edges becoming chipped or being too sharp for safe use. Any tungsten carbide tipped (TCT) router cutter will cut through Mirostone. When applying an edge, allow the router and cutter time to cut through the material without excessive pressure. Do not force the operation as this can lead to tooling marks which, on an edge profile, can be difficult to remove. And you run the risk of damaging your router cutter.

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Surface finishing

Once the Mirostone is installed with all the above processes complete, the surface must be sanded all over to create an even, consistent finish. Mirostone is supplied by the distributors with a 600 grit surface. This is an attractive finish for bathrooms, but we recommend that Mirostone installed into high traffic working areas (for example most family domestic kitchens), should be re-sanded and finished to no more than 500 grit. We also recommend that you finish to no more than 800 grit in all other rooms and applications. Higher levels of finish than these will result in a worksurface that requires intensive maintenance.

Begin the finishing process by sanding all joints, unfinished edges and exposed cut-outs and any other areas that have been worked on by you. Start with a 150 grit abrasive disc on your random orbital sander and 'feather' the area into the 500 grit factory finish. Sand in long flowing movements in a North/South and then East/West pattern. Never sand in short sharp movements or allow the sander to sit in one spot. Allow the weight of the sander tool to apply the pressure. Do not apply excessive pressure, it is extremely difficult to ensure consistent heavy pressure. Once you have sanded all the areas listed above, change the abrasive disc to a 240 grit, wipe the area with a microfibre cloth to remove any grit or debris and then repeat the above process. Always wipe the sanded area between abrasive disc sessions. Then change the abrasive disc to a 320 grit and move onto the next part of the finishing.

Again, wipe the entire surface of the Mirostone with a microfibre cloth to ensure all grit and debris is removed. Now, sand the entire surface with a 500 grit abrasive disc. Sand the surface in long flowing movements as noted above. Once the entire surface has been sanded with a 500 grit to an even, consistent finish, replace the 500 grit abrasive disc with the 500 grit Scotch-Brite polishing pad from the Mirostone installation kit (If you are finishing your Mirostone to a higher level than 500 grit please sand the entire surface with 600 grit then 800 grit abrasive discs using the principles described above, before finishing with a Scotch-Brite polishing pad).

There are situations where it is difficult to get an orbital sander into all areas of a typical Mirostone installation. Examples of these awkward areas are around an installed sink or hob and internal corners, especially when the Mirostone worktop is installed next to a tall oven housing unit.

We advise you use your orbital sander on these awkward areas before the sink and hob is installed into their cut-outs and before the Mirostone has been fitted into the corners.

Then, when the Mirostone worktop has been positioned and the sink and/or hob have been installed, complete the remaining sanding and finishing. At all times follow the sanding and finishing processes noted above. Refer also to the Fitting acrylic sinks section.

For those areas that you have not worked on, simply sand the entire surface with your random orbital sander with a 500 grit abrasive disc, in the same flowing manner as noted before. If you are finishing your Mirostone to a higher level than 500 grit, sand the entire surface with 600 grit then 800 grit abrasive discs using the principles described above, before finishing with a Scotch-Brite polishing pad.

Finally, with a damp microfibre cloth, wipe the entire surface removing all dust and debris and allow to dry naturally. You can now apply a solid surface polish of your choice (we recommend Eagle solid surface polish) and buff to a sheen using a microfibre cloth. Remember: polish is an applied finish, this means it sits on top of the solid surface and will need topping up as it will naturally degrade over time. Polish is not a cleaning product but a finishing product.

Securing cabinets to Mirostone surfaces

When fitting Mirostone to kitchen or bathroom cabinets, cut blocks of MDF approximately 50 x 18 x 18mm. Apply silicon to top and side of blocks and adhere to the side wall of the cabinet and the underside of the Mirostone. Should the surface ever need to be removed in the future simply remove the blocks.

Installation of upstands and splashbacks

Mirostone upstands and splashbacks can be finished in the same way as worktops and breakfast bars, however these should be finished before they are fitted as it is very difficult to consistently finish when they are attached to a wall. When finishing upstands and splashbacks, ensure they are adequately supported (for example, on builder's trestles and a baseboard).

Mirostone upstands and splashbacks should not be installed by fixing them to the worktop with solid surface adhesive. Instead apply dabs of silicone every 100mm to the wall surface to which the upstand or splashback is to be fitted. Press the upstand or splashback firmly against the wall to ensure a secure bond. You can use masking tape to hold the upstand or splashback in place whilst the silicone sets. A carefully applied continuous bead of silicone is required at the junction of the worktop and upstand or splashback to ensure a waterproof seal.

Maintenance

We have produced a leaflet entitled 'How to care for your solid surfaces' which includes details of the Mirostone warranty. We also offer a solid surface care and maintenance kit. We strongly recommend these are left with the occupant of the property. It is also a good policy to inform the occupant that solid surfaces do require re-finishing periodically: dependent on the level of use. Any offcuts of Mirostone should be placed under a cabinet, should any repairs ever need to be undertaken that require colour matched material.